

What is claimed is:

1. An injection apparatus, comprising:
a transition-bore needle apparatus, which comprises a proximal end, a distal end, and a lumen extending from the proximal end to the distal end, wherein a diameter of the proximal end of the transition-bore needle apparatus is greater than a diameter of the distal end of the transition-bore needle apparatus, wherein the proximal portion of the transition-bore needle apparatus comprises a first needle having a first diameter, and distal portion of the transition-bore needle apparatus comprises a second needle having a second diameter.
2. The apparatus of claim 1, wherein the first needle is glued to the second needle.
3. The apparatus of claim 1, wherein the first diameter is greater than the second diameter.
4. The apparatus of claim 1, wherein the first needle comprises a proximal end, a distal end, and a first lumen extending through the first needle from the proximal end to the distal end, and wherein the second needle comprises a proximal end, a distal end, and a second lumen extending through the second needle from the proximal end of the second needle to the distal end of the second needle.
5. The apparatus of claim 1, wherein the transition-bore needle apparatus comprises a portion of the first lumen of the first needle and a portion of the second lumen of the second needle, and a juncture in the lumen of the transition-bore needle apparatus, where the diameter thereof transitions from the first diameter to the second diameter.
6. The apparatus of claim 5, wherein the proximal end of the first needle terminates within the second lumen, and where the termination is at the juncture of the transition-bore apparatus.

7. The apparatus of claim 1, wherein the proximal end of the first needle is beveled to improve flow of viscous material through the lumen of the transition-bore needle apparatus.
8. The apparatus of claim 1, wherein the proximal end of the first needle is chamfered to improve a flow of viscous material through the lumen of the transition-bore needle apparatus.
9. The apparatus of claim 1, wherein the proximal end of the first needle is beveled and chamfered to improve a flow of viscous material through the lumen of the transition-bore needle apparatus.
10. The apparatus of claim 1, further comprising a tissue stop disposed around a perimeter of the transition-bore needle apparatus.
11. An injection apparatus, comprising
a hand-held injection facilitation apparatus, which comprises
a body that retains a syringe;
a rod disposed in the body, the rod comprising a distal end that contacts a proximal end of a plunger of the syringe; and
a pivot arm coupled to the rod and extending from the body so that movement of the pivot arm effects longitudinal displacement of the plunger of the syringe.
12. The injection apparatus of claim 11, wherein the body comprises a slot that accommodates a finger rest of the syringe.
13. The injection apparatus of claim 11, wherein the rod comprises a proximal end that has a spring disposed therearound, the spring being disposed between a proximal end of the body and an end of the pivot arm.

14. The injection apparatus of claim 11, wherein the pivot arm comprises an internal end disposed between two springs within the body, each of the springs providing opposing forces on the internal end of the pivot arm.
15. The injection apparatus of claim 11, wherein the rod has an end that extends from a proximal end of the body.
16. The injection apparatus of claim 11, further comprising a transition-bore needle apparatus coupled to the hand-held injection facilitation apparatus, wherein the transition-bore needle apparatus and the hand-held injection facilitation apparatus reduce the effort exerted by a person to eject a viscous material from the injection apparatus as compared to a syringe and catheter combination without a transition-bore needle apparatus and hand-held injection facilitation apparatus.
17. An injection apparatus for dispensing a viscous material, comprising¹⁷
a transition-bore needle apparatus, which comprises a needle at a distal end of the transition-bore needle apparatus, the needle having an outer diameter, and a proximal and distal end; and at least one catheter having a distal end, the distal end of the at least one catheter sealingly attached to the proximal end of the needle so that fluid is displaced through a lumen of the catheter and a lumen of the needle without being displaced between the engagement of the catheter and the needle; and
a hand-held injection facilitation apparatus coupled to the at least one catheter, the hand-held injection facilitation apparatus comprising a hollow body that retains a syringe that is attached to the catheter; a longitudinally displaceable rod disposed within the body, wherein a distal end of the rod contacts a proximal end of a plunger of the syringe; and a pivot arm coupled to the rod and extending from the body so that movement of the pivot arm causes longitudinal movement of the plunger of the syringe.

18. The injection apparatus of claim 17, further comprising a tissue stop disposed around the transition-bore needle apparatus so that the needle of the transition-bore needle apparatus is inserted a predetermined distance into a patient.
19. The injection apparatus of claim 17, further comprising a plurality of springs disposed on opposite sides of an internal end of the pivot arm to provide opposing forces to the internal end of the pivot arm.
20. The injection apparatus of claim 17, further comprising a slot within the body of the hand-held injection facilitation apparatus, the slot dimensioned to receive a finger rest of the syringe and to prevent distal displacement of the syringe from the hand-held injection facilitation apparatus.